

Claims

What is claimed is:

1. A leak diagnosis component comprising:

a junction block with a plurality of inlets and at least one outlet disposed in said junction block and opening through an external surface of said junction block;

said inlets being fluidly connected to said at least one outlet via a plurality of leak paths disposed in said junction block;

a leak collection cavity disposed in said junction block and being fluidly connected to each of said leak paths; and

a leak diagnostic port disposed in said junction block and extending between each of said leak collection cavities and said external surface of said junction block.

2. The component of claim 1 including a plurality of plugs removably attached to said junction block and closing a different ones of said leak diagnostic ports.

3. The component of claim 2 including a wet sensor attached to said junction block and being operably positioned to sense a presence of liquid in said at least one outlet.

4. The component of claim 3 wherein said at least one outlet is a single outlet.

5. The component of claim 4 wherein said external surface includes a top side; and

said inlets opening through said external surface at a location closer to said top side than a location where said single outlet opens through said external surface.

6. The component of claim 5 wherein said external surface includes a bottom side; and

said leak diagnostic ports opening through said external surface at a location closer to said bottom side than a location where said inlets open through said external surface.

7. The component of claim 4 wherein said junction block has three leak inlets, three leak collection cavities, and three leak diagnostic ports.

8. The component of claim 3 wherein said junction block has six leak inlets, six leak collection cavities, six leak diagnostic ports, and includes a separate return fuel manifold disposed therein.

9. A fuel system comprising:

a plurality of high pressure fuel spaces;

a plurality of leak lines operably connected to capture fuel leaking from different ones of said high pressure fuel spaces;

a leak diagnostic port fluidly connected to each of said leak lines and being operably positioned to evacuate fuel from different ones of said leak lines.

10. The fuel system of claim 9 including a separate leak collection cavity fluidly disposed between each leak diagnostic port and an associated one of said leak lines, and being operably positioned to capture fuel in different ones of said leak lines.

11. The fuel system of claim 9 including a separate closure for opening and closing each of said leak diagnostic ports.
12. The fuel system of claim 9 including a consolidated leak line with one end fluidly connected to said leak lines; and
a wet sensor operably connected to said consolidated leak line.
13. The fuel system of claim 12 wherein said one end of said consolidated leak line, said leak collection cavities, said leak diagnostic ports and one end of each of said leak lines being disposed in a leak diagnostic junction block.
14. The fuel system of claim 13 wherein said plurality of high pressure spaces include at least one common rail and a pump outlet.
15. The fuel system of claim 14 wherein said leak diagnostic junction block has three inlets, and one of said three inlets is fluidly connected to a pump outlet leak line, a second of said three inlets is fluidly connected to a first common rail leak line, and a third of said three inlets is fluidly connected to a second common rail leak line.
16. The fuel system of claim 14 wherein said leak diagnostic junction block has six leak inlets and includes a separate return fuel manifold.
17. A method of diagnosing a leak location in a fuel system for an engine, comprising the steps of:
capturing fuel from a leak originating from one of a plurality of different high pressure spaces into one of a plurality of separate leak lines;

opening different leak diagnostic ports until fuel is evacuated from one of the leak lines; and

identifying which one of the high pressure spaces is associated with the one of the leak lines.

18. The method of claim 17 including a step of detecting a leak in a consolidated leak line prior to the opening step.

19. The method of claim 18 including a step of fluidly positioning a leak collection cavity for each of the leak lines upstream from a respective leak diagnostic port for that leak line.

20. The method of claim 19 including a step of locating each of the leak diagnostic ports to open at a single surface adjacent the engine.